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No. IX.

SELF-CENTERING CHUCK.

The large SILVER MEDAL *was presented to Mr. S.* MORDAN, *22, Castle Street, Finsbury, for his Self-centering Lathe Chuck; a Model of which has been placed in the Society's Repository.*

MR. MORDAN is a manufacturer of pencil-cases and other similar articles, and has therefore occasion to pass a large quantity of wire through the lathe. For this purpose, the wire previously cut into lengths must be chucked quite correctly, in order to be drilled or pivoted, or to have the ends turned convex or concave, &c. It is found, however, that wire, even in the same hank, varies very notably in thickness; and as this difference, whenever it happens, requires a fresh adjustment of the chuck, the result is a great loss of time, there being no chuck that can be depended on capable of correctly accommodating itself to the various sizes of wire. Neither the right and left-handed chuck, nor the spring chuck, will answer this purpose. In order to obviate this difficulty, which, by its frequent occurrence, soon rises to a serious amount, Mr. Mordan invented the chuck about to be described. He found it fully to answer the end that he had in view, communicated it to some of his friends professionally conversant with fine turning, and receiving from them ample testimony of the use and efficiency of the invention, laid it before the Society of Arts, of which he is a member, in order that it might be freely offered to the public through the medium of their Transactions.

Fig. 6, Plate X, is a view of the chuck with a piece of wire fixed in it ready for turning; fig. 7 is a section of the same; *m* is the body of the chuck, having on the outside a raised broad ring, in which is bored a hole for a tightening and loosening lever; *rr* is a pair of steel jaws, in which the wire is held; and *d* is the cap or cover, by means of which the jaws are adjusted, so as to bring any thing placed between them accurately in a line with the axis of the chuck: the box has also a hole on the outside for a fastening and loosening lever. Fig. 10 is a section of the body of the chuck and of the jaws detached from the cap.

n is a hollow screw, by which the chuck is screwed on to the mandril; *oo* is an external screw surrounding the end of the body of the chuck, the intervening space *p* between it and the raised ring being plane. In the circular end *q* (shewn more distinctly in the end view, fig. 9,) is cut a dove-tailed groove, in which the jaws *rr* slide. Each of these jaws is of steel, and in the form of half a truncated cone, with a sliding piece at the bottom, which enters the groove. Figs. 11 and 12 are a front and side view of one of the jaws. The cap *t* has a hollow screw cut in it, which fits the external screw *oo*, fig. 10; and at the end of the cap is screwed or riveted a thick steel plate *uu*, figs. 7 and 8, the centre of which is pierced with a conical hole just wide enough to allow the jaws to project by about half their length. In order to use this chuck, the cap is taken off and the two jaws are slid from the centre to admit the wire between them; the jaws are then closed on the wire, and the cap is screwed on: during this latter operation, whatever eccentricity might at first have been in the position of the jaws is corrected by the pressure of the sides of the conical hole in the steel plate, so that the mere act of screwing on the cap necessarily brings the cylinder of wire between the jaws into the true centre of the chuck. This chuck is also well adapted for cutting small screws, as well as for receiving and actuating drills of all sorts and sizes, entirely saving the time that is generally lost in adjusting them.

To the workman who wishes to make this chuck, the following directions will be of use:—Take a piece of brass 1¾ inches long and the same in diameter; turn a hollow screw in one end, and thus fix it firmly on the mandril of the lathe, so that there shall not be the least degree of shake; then cut an external screw on the end ½ an inch long, leaving an equal distance plane between the screw and the raised ring, in which is the lever hole. On the projecting end of this piece of brass cut a dove-tail groove, then take a flat piece of steel, having a cylindrical stud ⅝ of an inch thick and the same in height, projecting from the middle of the upper face; adjust this piece of steel so that it shall fit the dove-tail groove accurately and yet slide easily in it, then turn the cylindrical stud till it assumes the figure of a truncated cone, ⅝ of an inch wide at bottom and ¼ of an inch at top. Then take a collar of brass and cut in it a hollow screw to fit the external one on the first piece of brass; let in to the outer end of the collar a disk of sheet steel 1¾ inch in diameter and ⅛ of an inch thick, fix it in its place by screws or rivets, and then pierce a hole through the centre of a conical form, so as to fit the upper half of the steel stud. Screw the cap tight on the stud and bore a hole truly in the axis of the chuck through the stud, and continue it down till it reaches the screw of the mandril; then take out the steel slider, enlarge the hole in the axis of the chuck, so as to receive easily the thickest wire that is wanted to be turned: lastly, divide the steel slider by a transverse cut into two equal parts or jaws, and angle them out so that they shall hold firmly whatever work may be put between them.

No. X.

DOUBLE DRIVER FOR A LATHE.

The ***Large Silver Medal*** *of the Society was this Session presented to Mr.* ***Jos. Clement****, 19, Prospect Place, St. George's, Southwark, for a Self-acting Double Driver for a Lathe Chuck; a Drawing of which is in the Society's Repository.*

21, *Prospect Place, St. George's, Southwark,*
Sir, *April* 30, 1829.

Through your kindness I beg to return my thanks to the Society of Arts, &c. for the several honorary rewards they have been pleased to confer upon me, viz. for my elliptical machine, drawing-table, and turning-lathe.

As it has always been the wish of the Society to encourage the invention of new machinery that is likely to be beneficial to the public, as well as the improvement of such as is already in use, I flatter myself that they will allow me the honour of laying before them a new self-adjusting double-driving centre chuck of a turning-lathe.